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process wafer under controlled ambient conditions; transferring the process wafer to the heating chamber under controlled ambient conditions following plasma etching of the process wafer; providing a heat exchange surface within the heating chamber for mounting the process wafer in heat exchange relationship thereto; mounting the process wafer on a heat exchange surface contained within the heating chamber; and, heating the process wafer to a temperature sufficient to vaporize an acidic residue thereon to form acidic vapors; and, removing the acidic vapors from the heating chamber.

0011 In another embodiment, the step of removing the acidic vapors is carried out simultaneously with the step of heating the process wafer. In another related embodiment, the steps of heating the process wafer and removing the acidic vapor are carried out for a period of time sufficient to remove from about 50 percent to about 100 percent of the acidic residue. In yet another related embodiment, the step of transferring the process wafer to the heating chamber is carried out prior to transferring

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the process wafer to an unloading chamber for unloading the process wafer.

0012 In yet further related embodiments, the process wafer is heated within a temperature range of about 75°C to about 100°C. Further, the ambient pressure within the heating chamber is maintained within a range of 10 milliTorr to 500 milliTorr. Yet further, the step of heating the process wafer is carried out for a period of about 30 to about 90 seconds.

0013 In further related embodiments, the heat exchange surface is supplied with a heat exchange fluid. Further, the heat exchange fluid is supplied in fluid communication with a heat exchanger. Yet further, the heat exchanger is provided with means for sensing a fluid flow rate and means for sensing a temperature. Further yet, at least one of the fluid flow rate and the temperature is controllably selected by a computer.

0014 In another related embodiment, the step of transferring the process wafer to the heating chamber is effectuated by a

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means for remotely manipulating the process wafer under controlled ambient conditions.

0015 In yet another related embodiment, the acidic residue is selected from the group consisting of HBr, HCl and HF.

0016 Another aspect of the present invention provides a heating chamber system for reducing acidic contamination on a process wafer following a plasma etching process.

0017 These and other embodiments, aspects and features of the invention will be better understood from a detailed description of the preferred embodiments of the invention which are further described below in conjunction with the accompanying Figures.